

REMARKS

In the Office Action mailed July 17, 2008, claims 1 and 3-21 were rejected. Claims 1, 3-8, 11-13 and 15- 21 were rejected under 35 U.S.C. §103(a) as being obvious over Bauck et al. (U.S. Pat. No. 4,189,759) in view of Lin et al. (U.S. Pat. No. 6,961,218). Claims 9, 10 and 14 were rejected under 35 U.S.C. §103(a) as being obvious over Bauck et al. in view of Lin et al. in further view of Nagahiro et al. (U.S. Pat. App. Pub. No. 2003/0218833).

Bauck et al. discloses a cantilevered beam assembly 20 that includes a base portion (or base plate) 22, a U-shaped guard portion 24, and a tip portion (or load beam) 26. (Bauck et al., col. 6, ll. 26-47; FIGS. 2 and 3). Element 22 of Bauck et al. refers to a base plate. The base portion (or base plate) 22 has holes 46, 48 and 50 for screw attachment to a carriage 152 that is not shown in FIGS. 2 and 3. (Bauck et al., col. 6, ln. 63 to col. 7, ln. 4; FIGS. 2 and 3; *see also* col. 13, ll. 14-16; FIGS. 1 and 7-9). The guard portion 24 "surrounds or enshrouds" the tip portion 26, and the claims describe the guard member (the "third member") as "being substantially in the same plane" as the base portion 22 (the "first elongated relatively flat support means") and the tip portion 26 (the "second elongated relatively flat support means"). (Bauck et al., col. 9, ll. 66-68; col. 10, ll. 43-46; col. 14, ll. 7-27; FIGS. 2 and 3). The tip portion (or load beam) 26 is a cross-shaped structure that is hingedly connected to the legs 52 and 54 of the base portion (or base plate) 22 via flexure means 36 and 38, which include leaf springs 100 and screws 102, 104, 106 and 108. (Bauck et al., col. 6, ll. 46-52; col. 8, ll. 3-7; col. 9, ll. 6-35; FIGS. 2, 3 and 6). A magnetic transducer 58 is supported by the tip portion 26. (Bauck et al., col. 8, ll. 18-21; FIG. 2).

As noted at page 3 of the June 17, 2008 Office Action, Bauck et al. fails to disclose an endcap connected to an end of an actuator arm, with a body of the endcap connected at a side of the actuator arm facing away from a load beam. This characterization is correct, and must be the case because the guard portion 24 of Bauck et al. is uniquely tied to the insertion of an arm assembly into an opening 156 in a flexible disc file 134 (or pack). (Bauck et al., col. 11, ln. 66 to col. 12, ln. 39; FIG. 7). The guard portion 24 must be positioned in-plane with the tip portion 26 in order to perform its guard function:

the guard portion provides protection to the disk pack and head arm support while in the pack. The guard portion causes the disks to be deflected around the tip portion, thereby preventing the disk from catching onto the edges of the transducer and tip portion.

(Bauck et al., col. 10, ll. 3-21; FIG. 7; *see also* col. 11, ln. 66 to col. 12, ln. 39; FIGS. 3 and 4).

Lin et al. discloses a disc drive actuator arm assembly having one or more slotted actuator arms. As shown in FIG. 6 of Lin et al., a rotatable actuator arm 160 is “bifurcated” by a through slot 164 “so as to define a first actuator arm tine 165 and a second actuator arm tine 166. As shown, the first actuator arm tine 165 is mechanically coupled to the second actuator arm tine 166 by an intra-actuator arm spacer 163 attached to the first and second actuator arm tines 165, 166.” (Lin et al., col. 5, ll. 8-16; FIG. 6; *see also* col. 4, ll. 7-26; FIGS. 5, 7 and 8). The through slot 164 permits airflow through the actuator arm 160 to help dissipate heat, and helps increase stiffness of the actuator arm 160 for vibration reduction. (Lin et al., col. 5, ll. 42-54).

When determining whether a claim is obvious, an examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995). Thus, “obviousness requires a suggestion of all limitations in a claim.” *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974)). In making an obviousness rejection, the Examiner bears the burden of establishing a *prima facie* case of obviousness based on the prior art. The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. *In re Fritch*, 972 F.2d 1260, 1265 (Fed. Cir. 1992) (citations omitted). The Examiner has the initial duty of supplying the requisite factual basis, and may not rely upon speculation, assumption or hindsight reconstruction to supply deficiencies in the factual basis. *In re Warner*, 37 F.2d 1011, 1017 (C.C.P.A. 1967), *cert denied*, 389 U.S. 1057 (1968). Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int’l Co. v.*

Teleflex Inc., 550 U.S. ____, 127 S.Ct. 1727, 1741 (2007), citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006); see also M.P.E.P. §2142.

However, the M.P.E.P. warns against improper obviousness combinations. “If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” M.P.E.P. §2143.01(V) (citing *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984)). “If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” M.P.E.P. §2143.01(VI) (citing *In re Ratti*, 270 F.2d 810 (C.C.P.A. 1959)).

Bauck et al. in view of Lin et al. fail to disclose, teach or suggest each and every limitation of independent claims 1, 11 and 19, because those references cannot be combined in the manner suggested in the Office Action. As explained above, the guard portion 24 of Bauck et al. is useful for its intended purpose only because it is positioned in-plane with the tip portion 26 (or load beam). In suggesting a modification of the teachings of Bauck et al. based on Lin et al., the Office Action cites Lin et al. as disclosing an “endcap (figure 6, item 165; column 5, lines 11-12) for use on an actuator arm . . . wherein the endcap is connected to a an [sic] end of the actuator arm to provide balancing (column 5, lines 8-26 & 42-54)” (7/17/08 Office Action, pp. 3-4). The Office Action further identifies element 165 of Lin et al. as being a body of the endcap connected to the actuator arm at a side facing away from the load beam. (7/17/08 Office Action, p. 4).

However, modifying the teachings of Bauck et al. to reposition the guard portion 24 at a top surface of the support arm assembly would render the guard portion 24 unsuitable for its intended purpose of surrounding the sensitive tip portion 26 during insertion into and removal from the opening 156 in the flexible disc file 134 (or pack). Bauck et al. discusses at length how the guard portion 24 protects both the transducer 58 carried by the tip portion 26 and the discs in the pack 134, and that functionality is the critical reason why the guard portion 24 is used at all. Repositioning the guard portion 24 of Bauck et al. to the top surface of the support arm assembly would undesirably expose the transducer 58 to contact with discs in the pack 134 at an opposite

bottom surface of the support arm assembly. This would be an unacceptable situation that is against the express teachings of Bauck et al., and would make the invention of Bauck et al. unsuitable for its intended purpose. Thus, there is no motivation to modify Bauck et al. in the manner suggested in the Office Action.

Furthermore, Lin et al. does not contain the missing limitations of Bauck et al. Element 165 shown in FIG. 6 of Lin et al. and cited in the Office Action is not a component used *on* an actuator arm as stated in the Office Action, but rather is a *portion of a bifurcated actuator arm*.¹ Moreover, independent claims 1, 11 and 19 each recite that the endcap or shield have a cantilevered configuration or include a cantilevered portion. Yet Lin et al. does not disclose the first actuator arm tine 165 as being cantilevered, but rather explicitly teaches away from a cantilevered configuration by providing mechanical coupling with the intra-actuator arm spacer 163 (or spacer 502 in other embodiments). Indeed, the explicitly stated function of the bifurcation of the actuator arm 160 of Lin et al. is to enhance stiffening for vibration reduction, and cantilevered configurations are undesirable for that objective because they reduce stiffness. (Lin et al., col. 5, ln. 55 to col. 6, ln. 25; FIGS. 6-8).

Bauck et al. relates to a rather old storage drive design using flexible discs that bend to accommodate the transducer 58 and tip portion 26, which moves in a linear, radial path with respect to discs in the file 134. In modern designs that do not use a flexible disc file 134, there is no need for the guard portion 24 and a person of ordinary skill in the art would not have considered the guard 24 relevant or adaptable to modern storage drives. A person of ordinary skill would have viewed Bauck et al. as dealing with a now irrelevant problem and the guard portion 24 as being an unnecessary drive component, and would not have been motivated to modify the guard portion 24 based on Lin et al. in a manner that is contrary to the teachings of those references. Therefore, there

¹ Lin et al. discloses two different elements both labeled by reference number 165: one of the actuator arm tines and an airflow arrow passing through the through slot 164. (Lin et al., col. 4, ll. 61-64; col. 5, ll. 10-12; FIGS. 5-8). This is an obvious error, and Lin et al. should have identified different reference numbers for those different elements. For clarity, Applicants have used reference number 165 to refer only to the first actuator arm tine in the present response.

would have been no motivation for a person of ordinary skill in the art to combine the cited art in the manner suggested in the Office Action.

Thus, independent claims 1, 11 and 19 are allowable over the cited art, and the rejections of those claims under §103(a) should be withdrawn. Notification to that effect is requested.

Claims 3-8 and 21 depend from independent claim 1 and include all of the limitations of that base claim, claims 12, 13 and 15-18 depend from independent claim 11 and include all of the limitations of that base claim, and claim 20 depends from independent claim 19 and includes all of the limitations of that base claim. Therefore, dependent claims 3-8, 12, 13, 15-18, 20 and 21 are likewise allowable over the cited art for the reasons given above with respect to independent claims 1, 11 and 19. The rejections of those claims should be withdrawn.

Claims 9, 10 and 14 were rejected under 35 U.S.C. §103(a) as being obvious over Bauck et al. in view of Lin et al. in further view of Nagahiro et al. (U.S. Pat. App. Pub. No. 2003/0218833).

Nagahiro et al. discloses a carriage arm assembly (or actuator arm assembly) for a magnetic disc drive. Nagahiro et al. discloses a suspension 2 (or load beam) that supports a slider 3 and a magnetic head (not shown) at a "tip" or distal end of a rotatable carriage arm 7, and a restraint board 12 affixed to the carriage arm 7. (Nagahiro et al., ¶¶16, 35 and 36; FIGS. 1-3). The restraint board 12 is a thin T-shaped structure in the embodiment shown in FIGS 1-3 of Nagahiro et al. (Nagahiro et al., ¶36; FIGS. 1-3).

A person of ordinary skill in the art would not have known to combine the teachings of Bauck et al., which are directed to guards for protecting an actuator assembly inserted into a flexible disc file, or Lin et al., which are directed to stiffening and cooling an actuator arm assembly, with the teachings of Nagahiro et al., which are directed to damping or dissipating vibrations in a disc drive assembly. The cited references deal with different, unrelated problems. The references are not compatible or modifiable in a way that would produce the present invention as claimed. The damping effect provided by Nagahiro is dependent upon its restraint board 12 being completely fixed to the arm 7 (i.e., not being cantilevered) in order to produce

vibration-dissipating strain in the viscoelastic material 11. Thus, combining the teachings of the cited references would undermine the recitations of base claims 1 and 11 regarding a cantilevered configuration or cantilevered portion, and the proposed modifications would impermissibly change the principle of operation of the cited art.

Thus, claims 9, 10 and 14 are allowable over the cited art, and the rejections of those claims under §103(a) should be withdrawn. Notification to that effect is requested.

CONCLUSION

All of the claims are in condition for allowance. The examiner is invited to contact the undersigned at the number below if it would in any way facilitate examination of this application. The Commissioner is authorized to charge any additional fees associated with this paper or credit any overpayment to Deposit Account No. 11-0982.

Respectfully submitted,
KINNEY & LANGE, P.A.

Date: September 17, 2008

By /Austen Zuege/
Austen Zuege, Reg. No. 57,907
THE KINNEY & LANGE BUILDING
312 South Third Street
Minneapolis, MN 55415-1002
Telephone: (612) 339-1863
Fax: (612) 339-6580

AZ:kmm